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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/572,674   | 08/30/2006  | Takashi Fujimaki     | Q93741              | 4433             |
| 23373 7590 10/01/2009<br>SUGHRUE MION, PLLC<br>2100 PENNSYLVANIA AVENUE, N.W.<br>SUITE 800<br>WASHINGTON, DC 20037 |             |                      |                     |                  |
| EXAMINER   |             |                      |                     |                  |
| YL, STELLA KIM   |             |                      |                     |                  |
| ART UNIT   |             | PAPER NUMBER         |                     |                  |
| 1791   |             |                      |                     |                  |
| MAIL DATE  |             | DELIVERY MODE        |                     |                  |
| 10/01/2009   |             | PAPER                |                     |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/572,674

**Applicant(s)**

FUJIMAKI ET AL.

**Examiner**

Stella Yi

**Art Unit**

1791

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date 03/20/2006
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4 and 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over ABELLA (3,903,294) and in further view of KOBAYASHI et al. (JP 2003-251673).

Regarding claims 1-3 and 7, ABELLA teach a process of forming heat shrinkable polyethylene terephthalate packaging film (PET) wherein heating of the polymerization reaction of the PET melt is conducted at 250°C; then extruded through a die onto a cooled casting rolls to form a cast sheet of PET; and thereafter biaxially orienting the amorphous cast sheet by stretching the sheet in a first direction followed by stretching in a second direction perpendicular to the first direction (Col.4, lines 2-20). ABELLA teach that the said PET melt is produced by transesterification reaction of a dialkyl ester terephthalic with at least two molecular proportions of ethylene glycol per molecular proportion of dialkyl terephthalate and that many known catalysts can be used to speed the transesterification reaction (Col.3, lines 12-31). Furthermore, ABELLA teach that PET has an intrinsic viscosity of about 0.62 to 0.9 deciliter/gram (Col.3, line 59). ABELLA does not explicitly disclose the said PET comprising the specific mixture "A" of instant claim 1. However, KOBAYASHI et al. discloses a method for manufacturing heat-resistant sheet and molded body of polyethylene terephthalate polyester (PET)

comprising melting at a temperature about 260-290°C (Page 12, [0025]) of an ingredient (mixture) A comprising:

(1) 100 parts by weight of a polyethylene terephthalate (PET)-based polyester "a" having a melt flow rate (MFR, JIS method: 280, load 2.16kg) of 45-130g/10minutes as a main raw material (Page 5, [0009] and Page 7, [0010]);

(2) 10 to 100 parts by weight of ethylene glycol/cyclohexane dimethanol/phthalic acid copolyester (Page 10, [0017]);

(3) 20 parts by weight of PBT (polyester elastomer) (Page 16, [0036]);

(4) 0 to 100 parts by weight a mixture containing a compound "b" ("d") having two epoxy groups and a compound "c" ("e") having three or more epoxy groups in a weight ratio of 95/5 as a binder (Page 9, [0016]); and

(5) 0.25 part by weight of an organic acid metal salt "g" as a catalyst (Page 5, [0009]);

turning the mixture "A" into block copolymer pellets by subjecting it to a uniform reaction under deaeration and dehydration in vacuum (Page 5, [0009] and Page 15, [0032]); and

molding a mixture comprising 100 parts by weight of the block copolymer pellets (Page 15, [0032]).

It would have been obvious to one of ordinary skill in the art to have substituted the PET of KOBAYASHI et al. for the PET of ABELLA for the predictable results of forming a PET based block copolymer heat-shrinkable packaging film. In addition, ABELLA teach that a PET film having a balanced heat shrinkable property along with

high heat resistance is desired (Col.1, lines 32-40). The PET film of KOBAYASHI et al. is manufactured to be a high heat-resistant film and is manufactured by an extrusion method such as the one taught by ABELLA. Therefore, it would have been obvious to one of ordinary skill in the art to have modified the method of forming a heat shrinkable PET of ABELLA by incorporating the mixture A of KOBAYASHI et al. in order to form a PET-based copolymer packaging film with balanced heat shrinkable property and high heat resistance.

Regarding claim 4, ABELLA teach that a temperature for extending the film into the oriented film through a biaxial orientation method is 65 to 85°C (Col.4, lines 34-45).

Regarding claim 8, KOBAYASHI et al. teach that compound "b" ("d") comprises at least one selected from the group consisting of ethylene glycol diglycidyl ether of an aliphatic series system, polyethylene glycol diglycidyl ether, alicyclic system hydrogenation bisphenol A diglycidyl ether (Page 6, [0009]).

Regarding claim 9, KOBAYASHI et al. teach that compound "c" ("e") comprises at least one selected from the group consisting of trimethylolpropane triglycidyl ether of an aliphatic series system, glycerol triglycidyl ether, triglycidyl paller of triglycidyl isocyanurate of a heterocyclic system, epoxidized soybean oil, epoxidation linseed oil, phenol novolak epoxy resin, and cresolnovolak epoxy resin (Page 6, [0009] and Page8, [0015]).

Regarding claim 10, KOBAYASHI et al. teach that the coupling reaction catalyst "g" comprises a composite containing salts selected from lithium salt, stearic acid, acetic

acid, sodium salt, potassium salt, magnesium salt, calcium salt, and zinc salt (Page 6, [0009]).

Regarding claim 11, ABELLA teach a process of forming heat shrinkable polyethylene terephthalate packaging film (PET) wherein heating of the polymerization reaction of the PET melt is conducted at 250°C; then extruded through a die onto a cooled casting rolls to form a cast sheet of PET; and thereafter biaxially orienting the amorphous cast sheet by stretching the sheet in a first direction followed by stretching in a second direction perpendicular to the first direction (Col.4, lines 2-20). ABELLA teach that the said PET melt is produced by transesterification reaction of a dialkyl ester terephthalic with at least two molecular proportions of ethylene glycol per molecular proportion of dialkyl terephthalate and that many known catalysts can be used to speed the transesterification reaction (Col.3, lines 12-31). Furthermore, ABELLA teach that PET has an intrinsic viscosity of about 0.62 to 0.9 deciliter/gram (Col.3, line 59). ABELLA does not explicitly disclose the said PET comprising the specific mixture "A" of instant claim 1. However, KOBAYASHI et al. discloses a method for manufacturing heat-resistant sheet and molded body of polyethylene terephthalate polyester (PET) comprising melting at a temperature about 260-290°C (Page 12, [0025]) of an ingredient (mixture) A comprising:

(1) 100 parts by weight of a polyethylene terephthalate (PET)-based polyester "a" having a melt flow rate (MFR, JIS method: 280, load 2.16kg) of 45-130g/10minutes as a main raw material (Page 5, [0009] and Page 7, [0010]);

(2) 10 to 100 parts by weight of ethylene glycol/cyclohexane dimethanol/phthalic acid copolyester (Page 10, [0017]);

(3) 20 parts by weight of PBT (polyester elastomer) (Page 16, [0036]);

(4) 1 to 15 parts by weight of a binder masterbatch comprising 50 to 100 parts by weight of a mixture containing a compound "b" ("d") having two epoxy groups and a compound "c" ("e") having three or more epoxy groups in a weight ratio of 95/5 as a binder (Page 9, [0016]) and 100 parts by weight of a base substance "h" as a binder (Page 11, [0021]); and

(5) 0.25 to 10 parts by weight of a catalyst masterbatch containing 5 or less parts by weight of a catalyst "g" and 100 parts by weight of a base substance as a catalyst (Page 11, [0021]-[0022]);

turning the mixture "A" into block copolymer pellets by subjecting it to a uniform reaction under deaeration and dehydration in vacuum (Page 11, [0022]-[0026]);

molding a mixture comprising 100 parts by weight of the block copolymer pellets (Page 11, [0022]-[0026]).

It would have been obvious to one of ordinary skill in the art to have substituted the PET of KOBAYASHI et al. for the PET of ABELLA for the predictable results of forming a PET based block copolymer heat-shrinkable packaging film. In addition, ABELLA teach that a PET film having a balanced heat shrinkable property along with high heat resistance is desired (Col.1, lines 32-40). The PET film of KOBAYASHI et al. is manufactured to be a high heat-resistant film and is manufactured by an extrusion method such as the one taught by ABELLA. Therefore, it would have been obvious to

one of ordinary skill in the art to have modified the method of forming a heat shrinkable PET of ABELLA by incorporating the mixture A of KOBAYASHI et al. in order to form a PET-based copolymer packaging film with balanced heat shrinkable property and high heat resistance.

3. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over ABELLA (3,903,294) in view of KOBAYASHI et al. (JP 2003-251673) as applied to claims 1-4 and 7-11 above and in further view of ERICKSON (3,631,899).

The teachings of ABELLA and KOBAYASHI et al. are applied as described above for claims 1-4 and 7-11.

Regarding claim 5, ABELLA teach a process of forming heat shrinkable polyethylene terephthalate packaging film (PET) by biaxially orienting the amorphous cast sheet by stretching the sheet in a first direction followed by stretching in a second direction perpendicular to the first direction (Col.4, lines 2-20). ABELLA teach that the said PET film is biaxially oriented by balanced shrinkage properties of at least 40 percent in both longitudinal and transverse directions (Col.2, lines 54-57) but is silent to the temperature of the heat shrinkage being at 130°C. ABELLA teach that the greater the shrinkage the more useful is the film as a heat shrinkable film. In other words, film having higher shrinkage characteristics results in a more useful film (Col.6, lines 55-70). However, ERICKSON teach a PET film that shrinks between about 40 and 50 percent at 130°C and that the film should not be heated to a temperature above 130°C to assure that the film will exhibit the desired heat-shrinkage characteristics at practical shrinking



temperatures (Col.3, lines 38-57). Therefore, it would have been obvious to one of ordinary skill in the art that the PET film of ABELLA would have a degree of heat-shrinkage of 30% or more at 130°C.

Regarding claim 6, modified ABELLA is silent to a weld-cut sealing strength. However, ABELLA modified by KOBAYASHI et al. teach a method of producing a heat-shrinkable film of a PET based block copolymer polyester comprising the formula of mixture A of instant claim 1 and it would have been obvious to one of ordinary skill in the art that the weld-cut sealing strength would depend on the composition of the PET film mixture. Therefore, it would have been obvious to one of ordinary skill in the art that the PET film of KOBAYASHI et al. would have strength of 500g/15mm width or more since it comprises the ingredients as that of mixture A of instant claim 1.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stella Yi whose telephone number is 571-270-5123. The examiner can normally be reached on Monday - Thursday from 8:00 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SY

/Matthew J. Daniels/  
Primary Examiner, Art Unit 1791  
9/11/09